

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

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Listing of Claims:

1. (Currently Amended) An input protection circuit of a handheld electric device for protecting internal circuitry of the handheld electric device, the internal circuitry having a positive input node and a ground node, the input protection circuit comprising:
  - a power socket having a positive input node and a ground node for electrically connecting two output nodes of a direct current (DC) power supply, the ground node of the power socket being electrically connected to the ground node of the internal circuitry;
  - a bipolar junction transistor (BJT) having an emitter electrically connected to the positive input node of the power socket, a collector electrically connected to the positive input node of the internal circuitry, and a base;
  - a metal-oxide semiconductor (MOS) transistor for controlling on and off of the BJT, the MOS transistor having a source electrically connected to the ground node of the internal circuitry, a drain electrically connected to the base of the BJT, and a gate; and
  - a first resistor electrically connected between the positive input node of the power socket and the gate of the MOS transistor;
  - a first switch electrically connected between the gate of the MOS transistor and the ground node of the power

socket; and  
an overvoltage sensing circuit electrically connected  
between the positive input node and the ground node  
of the power socket for controlling the first switch;  
5       wherein when the DC voltage exceeding the threshold inputs  
from the positive input node and the ground node of  
the power socket, the overvoltage sensing circuit will  
turn on the first switch to directly connect the gate  
of the MOS transistor with the ground node of the power  
10      socket so as to turn off the MOS transistor; and when  
the DC voltage below the threshold inputs from the  
positive input node and the ground node of the power  
socket, the overvoltage sensing circuit will turn off  
the first switch so as approximate a voltage at the  
15      gate of the MOS transistor to a voltage at the positive  
input node of the power socket thereby turning on the  
MOS transistor.

~~an overvoltage protective circuit having two input nodes~~  
20      ~~and an output node for controlling on and off of the~~  
~~MOS transistor, the two input nodes being electrically~~  
~~connected to the positive input node and the ground~~  
~~node of the power socket, the output node being~~  
~~electrically connected to the gate of the MOS~~  
~~transistor;~~

25      wherein when a reverse DC voltage or a DC voltage exceeding  
a threshold inputs from the positive input node and  
the ground node of the power socket, the overvoltage  
protective circuit will turn off the MOS transistor  
thereby turning off the BJT to prevent damages of the  
30      internal circuitry; and when a DC voltage below the  
threshold inputs from the positive input node and the  
ground node of the power socket, the overvoltage

~~protective circuit will turn on the MOS transistor thereby turning on the BJT so as to input the DC voltage to the internal circuitry through the BJT.~~

- 5    2. (Original) The input protection circuit of claim 1 further  
comprising a diode electrically connected between the base  
of the BJT and the drain of the MOS transistor, wherein  
when the reverse DC voltage inputs from the positive input  
node and the ground node of the power socket, the diode  
10    will prevent a reverse parasitic current of the MOS  
transistor from flowing into the base of the BJT so as to  
protect the BJT.
- 15    3. (Original) The input protection circuit of claim 1 further  
comprising a high-resistance resistor electrically  
connected between the base of the BJT and the drain of the  
MOS transistor, wherein when the DC voltage below the  
threshold inputs from the positive input node and the ground  
node of the power socket, the resistor will greatly reduce  
20    a current flowing through the base of the BJT to the drain  
of the MOS transistor.
4. (Cancelled)
- 25    5. (Currently Amended) The input protection circuit of claim  
[[4]] 1 wherein the first switch is a transistor switch,  
the overvoltage sensing circuit comprising:  
a zener diode electrically between the positive input node  
of the power socket and a base of the transistor switch;  
30    and  
a second resistor electrically connected between the base  
of the transistor switch and the ground node of the

power socket;  
wherein when the DC voltage exceeding the threshold inputs  
from the positive input node and the ground node of the  
power socket, the zener diode is turned on to increase  
5 a voltage at the base of the transistor switch so as  
to turn on the transistor switch; and when the DC voltage  
below the threshold inputs from the positive input node  
and the ground node of the power socket, the zener diode  
is turned off to approximate the voltage at the base  
10 of the transistor switch to a voltage at the ground node  
of the power socket so as to turn off the transistor  
switch.

6. (New) An input protection circuit for protecting internal  
15 circuitry of a DC electrical device, the input protection  
circuit comprising:  
a bipolar junction transistor (BJT) having an emitter  
connected to a positive input of the input protection  
circuit, a collector connected to a positive input of  
20 the internal circuitry, and a base;  
a metal-oxide semiconductor (MOS) transistor having a source  
connected to a ground of the internal circuitry, a drain  
connected to the base of the BJT, and a gate;  
a first switch connected between the gate of the MOS  
25 transistor and the ground of the internal circuitry;  
and  
an overvoltage sensing circuit connected between the  
positive input of the input protection circuit and the  
ground of the internal circuitry for controlling the  
first switch;  
30 wherein when the positive input of the input protection  
circuit receives a DC voltage exceeding a predetermined

threshold, the overvoltage sensing circuit will turn on the first switch to directly connect the gate of the MOS transistor with the ground of the internal circuitry to turn off the MOS transistor.

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